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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,932	09/14/2006	Kaoru Narita	NEC P16165	2204
27667 7590 06/02/2009 HAYES SOLOWAY P.C. 3450 E. SUNRISE DRIVE, SUITE 140 TUCSON, AZ 85718				
EXAMINER GLENN, KIMBERLY E				
ART UNIT 2817		PAPER NUMBER		
MAIL DATE 06/02/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/598,932

**Applicant(s)**

NARITA, KAORU

**Examiner**

KIMBERLY E. GLENN

**Art Unit**

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-10, 12-20 and 22 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 11, 21, 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 9/18/06 & 5/14/09
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 9/18/06 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 10 and 22 are objected to because of the following informalities:

With regards to claim 10, examiner suggest changing " each closed conduit" to - each of said conduit- - and changing " each insulating material" to - - said insulating material. The above suggestions also apply to claim 22.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-10, 13- 20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regards to claim 4, applicant recites a signal voltage in line 4 of the claim. How does this signal voltage related to the signal voltage recited in line 8 of claim 1?

With regards to claim 13, applicant recites a signal voltage in line 4 of the claim. How does this signal voltage related to the signal voltage recited in line 3 of claim 12?

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12 -14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gruchalla et al US Patent 5,157,361.

Gruchalla et al disclose a nonlinear transmission line comprising electrodes 14 and 16 and dielectric formed by the depletion region 18. The dielectric 18 is surrounding by region 22 and 24 which are doped to comprise a semiconductor diode.

The regions 22 and 24 isolated the electrodes from the dielectric. The capacitance per unit length of transmission line formed by electrodes and the dielectric is a function of the signal voltage applied across the electrodes. A signal source 12 is applied to electrodes 14 16 therefore inherently on electrode with function a signal conductor and the other electrode will function as a reference (i.e. ground) conductor. (Column 12; lines 38-63)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5, 24 ad 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) figure 1 in view of Gruchalla et al US Patent 5,157,361.

AAPA disclose a circuit comprising a general transmission line 1 serving as a data bus connecting input/output circuits 3 present in plurality integrated circuit chips 2. The transmission lines transmit data between the integrated circuits.

Thus, AAPA is shown to teach all the limitation of the claims with the exception of the transmission line having an element that changes an effective reactance per unit length depending on at least one of a signal voltage and a signal current.

Gruchalla et al disclose a nonlinear transmission line comprising electrodes 14 and 16 and dielectric formed by the depletion region 18. The dielectric 18 is

surrounding by region 22 and 24 which are doped to comprise a semiconductor diode. The regions 22 and 24 isolated the electrodes from the dielectric. The capacitance per unit length of transmission line formed by electrodes and the dielectric is a function of the signal voltage applied across the electrodes. A signal source 12 is applied to electrodes 14 16 therefore inherently on electrode with function a signal conductor and the other electrode will function as a reference (i.e. ground) conductor.

Therefore, one of ordinary skill in the art would have found it obvious to replace the general transmission line of AAPA with a nonlinear transmission line as taught by Gruchalla et al.

The motivation for this modification would have been to provide a transmission line with the advantageous benefit of generating signals exhibiting fast transition times and wherein the signals have high signal amplitude. (Column 1; line 62-65)

***Allowable Subject Matter***

Claims 2, 3, 11, 21 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY E. GLENN whose telephone number is (571)272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/BENNY LEE/  
PRIMARY EXAMINER  
ART UNIT 2817**

Kimberly E Glenn  
Examiner  
Art Unit 2817

May 20, 2009  
/K. E. G./  
Examiner, Art Unit 2817